



Forest
Service

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Subject: Heckethorn Forest Health Project

To: District Ranger, Mormon Lake and Peaks Ranger District, Coconino NF

On September 5, 2007, I visited the Peaks Ranger District, Coconino NF, at the request of Andrew Stevenson to discuss and evaluate a forest health project within the Eastside Fuels Reduction and Forest Health project area on the District. I describe in this report what bark beetle activity was observed in this area, general existing stand conditions, and make recommendations to minimize future bark beetle impacts.

Heckethorn Forest Health Project

The Peaks Ranger District is planning to non-commercially thin a total 614 acres of ponderosa pine forest in the Heckethorn Area of the Eastside Fuels Reduction and Forest Health Project. The Heckethorn project area is located in the wildland urban interface (WUI) zone southeast of Flagstaff in Coconino County. The District is proposing to use monies saved from three other forest health projects that were funded in FY2008 on the Coconino NF to thin 160 acres across the two units of Heckethorn. The primary objectives for the 160 acres are to improve forest health, improve stand and individual tree resilience and vigor, reduce risk of catastrophic wildfire, and improve vegetative species diversity.

The proposed forest health project is divided into two units adjacent to private property in the Heckethorn and Fay Canyon areas southeast of Flagstaff. Unit 1 is 45 acres and Unit 3 is 115 acres. Andy and I evaluated these units for bark beetle activity and general stand conditions. The units are dominated by dense stands of young ponderosa pine with scattered juniper in drier sites and Douglas-fir/white fir near the edge of Fay Canyon. Tree stems per acre range from 500 to 1,200 with predominantly 5 to 9 inches dbh trees. These areas have experienced low to moderate bark beetle-caused mortality over the past few years. Excess competition from smaller trees has also greatly increased the risk of loss due to mortality of the scattered large yellow pine and large oak in the area. Continuous interlocking crowns and well-developed fuels ladders leaves vegetation on these sites at a high risk of loss from catastrophic wildfire.

Proposed treatments include non-commercial thinning of ponderosa pine up to 9 inches in diameter; resulting in a residual basal area of less than 40-50 ft²/acre where feasible. Activity slash <5 inches in diameter will be hand piled and burned at a later date. Slash >5 inches will be lopped and left on the site in forest openings. The proposed non-commercial thinning along with associated activity slash treatments would reduce the Fire Regime Condition Class for the treated sites from a Condition Class 3 or 2 to a Condition Class 1.

The Heckethorn project will increase both individual tree and stand health with residual trees being more resilient against attack from bark beetles and environmental stresses. Thinning



around large yellow pines will reduce competition with smaller trees. The opening of tree canopies and the reduction of fuel ladders will reduce the risk of future crown fires.



Figure 1. Dense stand conditions near private property in Unit 1 of Munds Park (left) and unit 3 (right) of the Heckethorn Forest Health Project area.

Recommendations

The non-commercial thinning treatments within the Heckethorn project area will help to reduce the overall susceptibility of stands to bark beetle attack in the long term as well as improve overall tree vigor, lessen risk of catastrophic wildfire, and improve vegetative species diversity. Activities proposed for the Heckethorn area are covered under the Eastside Fuels Reduction and Forest Health Project Environmental Assessment. The decision notice for this project has been signed. Thinning for these units is planned during the fall of 2008.

High stand density reduces both individual tree and stand vigor and therefore increases stand susceptibility to mortality from bark beetles. Over the past several years the Coconino NF has seen high levels of ponderosa pine mortality, particularly in the ponderosa/pinyon-juniper transition zones that is characteristic of the proposed treatment areas. Excess competition from smaller trees has also greatly increased the mortality risk of scattered large yellow pine. Also, continuous interlocking crowns and well-developed fuels ladders leaves vegetation on these sites at a high risk of loss from catastrophic wildfire.

Thinning from below has been experimentally demonstrated to increase the resistance level of the residual mature pine overstory (Feeney et al. 1998). Thinning slash may pose a short-term risk to residual trees in the thinning units or surrounding areas depending on the timing of thinning, local population of pine engraver beetles, and site and environmental factors such as site quality and precipitation. Careful monitoring of beetle populations associated with these thinning projects should be implemented if slash is generated outside of the recommended thinning window of fall 2008. DeGomez et al. (2008) and Parker (1991) provide guidelines for minimizing pine engraver beetle impacts associated with thinning treatments, such as thinning during periods of bark beetle flight inactivity.

If you have any questions regarding my assessment of the proposed project area or my recommendations, please let me know.

/s/ *Joel D. Mcmillin*

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References Cited

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